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Chief, Engineering Division, OC

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Task Outline, submission of

ENCLOSURE : (A) Subject Outline

1. The subject outline, containing requirements for a study-survey and tentative specifications, is hereby submitted as a basis for additional research toward acceptable facsimile cyphering equipment.

2. Part of the study requirements listed in the subject outline have been lifted from the National Defense Research Committee's Summary Technical Reports, Division 13, Vol. 3, Chapter 6, Project C-73. Project C-73 (Contract OEMar-837, Radio Corp. of America) had as its object a survey of the general field of facsimile privacy and was conducted between December 1942 and October 15, 1943. The object of the study requirements in the subject outline is to search out what has been accomplished in the field of facsimile privacy since October 15, 1943, and, if possible, adapt some system, or combination of systems to a facsimile secrecy device.

3. Item 5 of the study requirements is suggested by the writer as a possible approach to the scrambling problem. The idea involves reducing the number of picture elements to the actual number of changes in black and white conditions with time of duration of either condition represented as proportional amplitude.

4. Item 6 of the study requirements, involving keying devices, is suggested by the writer as an area requiring considerable emphasis. A heavy work load on a piece of equipment may make the fabrication of tapes for keying devices a problem within itself. A rapid means of producing these tapes should be studied simultaneously with the keying devices, and should influence to some extent the selection of a type of keying mechanism.

5. The study requirements of the subject outline requires considerable research in areas such as the Signal Corps, AFSA, Navy and other government or government controlled areas. If the subject task is assigned a commercial contractor, it may be more advantageous for the Agency to conduct simultaneous supplementary research in preference to clearing contractor personnel for the job.

6. The subject equipment is required specifically for use with the Faxcard facsimile equipment now in operation in the Machine Division, OCD. However, it is highly desirable to build into the equipment sufficient versatility to satisfy other needs of the Agency. The tentative equipment specifications are necessarily sketchy. The ideal secrecy device should contain sufficient flexibility of operation to be applicable to voice frequencies as well as high speed facsimile. The specification contained in item 6 of the product requirements, concerned with a detachable "heart", is submitted as a step

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toward the desired flexibility.

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7. The pursuance of a study of the subject type necessarily requires continued close liaison between the government, the contractor and the component supplier. Reference is made to Periods 1 and 2 of the engineering design phase of the subject outline. Unless sufficient precautionary measures are effected by the government consistent with policy and the design selected, tangential forays may become costly and delaying. This is not to be interpreted as an attempt to throttle initiative, but to insure good engineering policy and to gate blind alleys.

8. With reference to letting the subject Task to a commercial contractor, it is strongly recommended that the problem be broken into two or more possible contracts, to be run consecutively as dictated by the success of the preceding contract.

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